Condition Monitoring and Fault Diagnosis of Bearing Using Hybrid Method Based on EEMD and Minimum Entropy Deconvolution

Rabah ABDELKADER, Ziane DEROUICHE, Mohammed Khorchef, Ahmed Benyahia, Mourad ZERGOUG, Fatiha Smaili

Abstract : The application of vibration signals is power tool for diagnostic of bearing defect, however this signal is usually noisy and the information about the fault can be lost.This paper presents a novel method based on ensemble empirical mode decomposition EEMD and the minimum entropy deconvolution (MED) . MED technique is used to denoise the vibration signals, and the filtered signal is decomposed into a number of IMFs using the EEMD decomposition. The selection of the relevant modes is dependent on the correlation coefficient between the IMFs and the filtered signal. The experimental results show that the roller bearing fault features can be extracted effectively by this method

Keywords : Empirical Mode Decomposition, minimum entropy deconvolution, bearing faults, correlation coefficient